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a thousand impressive and fantastic shapes, while the icebergs add wonderful forms and colour; and, lastly, because of its restful isolation and simplicity. It invites the hunter and the fisherman but too loudly, for a terrible waste has been committed; yet the elk still haunt the barrens, and the bear and fox the woods, while the streams abound in trout and salmon. It invites the artist, who will discover in the villages nestling in the coves quaint forms in building, and hardy yet sometimes beautiful types of men and women. It invites the geologist and prospector, inasmuch as copper, iron, and some rarer metals are found in paying quantities—gold in amounts that warrant hope of more, coal in seams too shallow for profit yet promising relationship to the great beds of Cape Breton, and fossils and minerals of scientific interest, while the glacial erosions—the great folds, fractures, and intrusions in the rock foundations—deserve study.

But Newfoundland invites more than the visitor; it invites the settler. England's oldest colony is in touch with our markets; its port, the eastmost in North America, is three and one half days from Europe; its woods await the scientific forester; its mines the pick; its fields the plough; its rivers the harness of the manufacturer, miller, and power-maker. The climate is healthy; there is room to grow, and land is practically given away. Pioneer work is to be done for popular education and for internal improvements before the American ideal is reached, and when that occurs the charm of this out-of-the-world place may be dispelled. Yet in the westward set of immigration its development is inevitable, and in the changes that impend the social and industrial dynamic of the railroad must be considered.

GEOGRAPHICAL RECORD.

AFRICA.

OSTRICHES IN THE OUDTSHOORN DISTRICT OF CAPE COLONY.—This district of the Cape of Good Hope is girdled with mountains, and so difficult of access that there seemed to be little hope of raising bulky farm products for exterior markets. Its prosperity is a good illustration of adapting human activities to natural conditions. The *Agricultural Journal* of the Cape of Good Hope (Sept., 1905) says that the wealth of the district (which is a little north of Mossel Bay) in soil and water is very great, and that nothing was lacking but cheap transportation. With the development of irrigation it was found that lucerne (alfalfa), the king of fodder plants, grew finely wherever water was procurable; but the cultivation of

this grass would not have reached its great extent if it had not been for the ostrich-feather industry, which has grown to enormous proportions throughout the district. Ostriches thrive on alfalfa.

Until recently the only way to get produce out of the district was by ox wagon over the mountain passes, which made it impossible to establish dairy or other agricultural industries on a large scale. The advantage of the ostrich industry is that the whole crop of feathers from an extensive farm may be carried out in a Cape cart, so that the question of transport does not affect the industry very much. The birds not only thrive on the rich pasturage, but the quality of the feathers is superior. A line of railroad has now been carried into the district; and it is expected that in time not a few of the large ranches, where only flocks of these huge birds are now seen, will produce herds of dairy stock and flocks of sheep.

COMMANDANT LEMAIRE RETURNS FROM AFRICA.—This well-known explorer, who rendered much service to African geography about five years ago by fixing astronomically the positions of a large number of places in the south and south-eastern part of the Congo Free State (BULLETIN, 1901, p. 180), has rendered similar service in the northeastern part of the Congo Basin, and has returned to Belgium after three years' absence. In addition to his official negotiations with the Government of the Anglo-Egyptian Sudan concerning Lado, he collected a very large amount of meteorological, hypsometrical, and botanical data, surveyed an area not less than 4,000 square kilometers in extent, and determined the astronomical positions of 135 places.

TELEGRAPH ON THE CONGO.—Our monthly *Consular and Trade Reports* (Aug., 1905) say that communication by telegraph and telephone has been largely developed along the Congo River within the past ten years. The first telegraph line was established between Boma and Matadi, forty miles, in July, 1895. In September, 1898, communications both by telegraph and telephone were completed between Matadi, the highest point reached by European steamers on the lower Congo, and Leopoldville on Stanley Pool, from which about 100 steamers are plying on the 7,000 miles of navigable waterways on the upper Congo. In 1899 there were 800 miles of wire in use. Since then the long-distance telephone has been perfected, and communications are practicable for distances of about 400 miles. Successful experiments have recently been made with wireless telegraphy.

A TELEGRAPH LINE ACROSS THE SAHARA.—Through the efforts of Mr. Jonnard, Governor-General of Algeria, and the French Ministries of the Interior and the Colonies, an enterprise is now under way which will result in a telegraph line across the Sahara. The *Annales de Géographie* (No. 76) says that Mr. Etiennot, the Inspector-General of the Postal and Telegraphic Services of Algeria, is now selecting a route for the line between Beni-Abbès, to which the Algerian telegraph service has just been extended, and Adrar, in the oasis of Tuat. South of Tuat the line will be extended to the Ahaggar Mountains, in the central part of the desert, from which point it will be carried southwest to Timbuktu near the Niger. The *Bulletin Trimestriel* of the Geographical and Archæological Society of Oran says that the preliminary studies will be completed this fall, and the work of building the line will begin next winter.

COPPER IN KATANGA.—Mr. H. Büttgenbach publishes in the *Annales* of the Belgian Geological Society (Vol. XXXI) a paper on the copper of the Katanga

province in the southeast part of the Congo Free State, where he took part for eighteen months in the work of prospecting. He says the ore deposits are distributed in great quantity over a territory of about 80,000 square kilometers in the basins of the upper Lualaba and the Lufira Rivers. This copper region was first visited by Reichard in 1885, and was studied more closely by Cornet in 1894, and a large amount of research work has been done there since 1900. The region is composed of old sedimentary rocks (sandstone, quartzite clays, conglomerate, and limestone) which, in the ore-producing zone, appear to belong to the upper Devonian and probably also to the Carboniferous. The ore deposits, as far as they have been worked out, are the results of the impregnation of some of the strata with copper salts, especially malachite. The ore runs about 14 per cent. copper. Usually there is only a trace of gold or silver, but in some cases a ton of ore yields 3 grams of gold and 72 grams of silver. As exploration has not yet extended below a depth of 40 meters, it is not known how deep mining may be carried. The paper is devoted chiefly to a description of some of the more important and typical deposits. Reports in the *Mouvement Géographique* for two years past have encouraged the expectation that this copper region may take its place among the great producers of that metal.

RESULTS OF THE SEGONZAC EXPEDITION IN MOROCCO.—The BULLETIN recorded in the May number (p. 291) the return of the Marquis de Segonzac to Morocco and his capture by Berbers in the southwest part of the country. The *Bulletin* of the "Comité de l'Afrique Française" reports the release of the French explorer, who was able to save his notes and most of his collections, and has returned to France with his companions, Messrs. Gentil and de Flotte Roquevaire. He desired in particular to study the two slopes of the central main range of the Atlas, the connections between this and the middle and Anti-Atlas, and the economic resources and inhabitants of those regions. He went to the headwaters of the Dra, covered a considerable extent of country, and has brought back scientific observations of all kinds. Mr. Gentil studied the geology and topography of the western part of the Main Atlas and the coast region south of Mogador. During his passage of the Main Atlas he discovered the first fossils by which it will be possible to determine the age of the ancient axis of the range in these parts. On the southern slope he found the remains of a carboniferous fauna, and discovered that the granite base of Jebel Sirwa supports well-preserved remains of volcanoes, apparently of Tertiary age. Mr. de Flotte Roquevaire triangulated the Huz and the western part of the Atlas, taking bearings from 66 stations and fixing the co-ordinates of about 300 positions. This work will be most helpful in the future mapping of that region.

THE GIANT GORILLA OF THE SANGA.—*La Nature* recently printed the photograph of an enormous anthropoid ape that was killed near the Sanga River, in the French Congo. Dr. E. T. Hamy writes that these large animals have been seen several times in the past year among the valleys of the Lôm and Sanga Rivers. The white men at the German and French stations corroborate this report that an anthropoid of great size lives in the forests along the boundary between the Cameroons and the French Congo.

Mr. Eugène Brussaens, who sent the photograph to *La Nature*, says that the animal appears to be a gorilla, differing from those living in Gaboon only in its enormous stature. Its skull, face, and ears are exactly like those of the gorilla. The specimen that was killed was not less than seven and one half feet in height,

and its body in a sitting position was as high as an ordinary Pahuin native. It was killed near Uessu, the chief station on the River Sanga, and was one of three animals living in the neighbouring forest and which had become known by their large footprints on the ground.

The animal was almost bare upon the breast and stomach, but its shoulders and thighs were covered with thick, long hair. It was about three feet and a half in breadth across the shoulders, it weighed nearly 800 pounds, and eight porters were required to bring it to the station. Mr. Dupont, the Administrator at Uessu, intends to send the skeleton of this unique specimen to Paris. If it is not a new species it is believed to be a new variety of the gorilla. A later report says that another similar specimen has been killed near Bayanza on the Sanga.

AMERICA.

UNITED STATES RAILROADS IN 1904.—The statistics of railroads compiled by the Interstate Commerce Commission for the year ending June 30, 1904, show a total single-track railroad mileage in the United States of 213,904 miles—an increase of 5,927 miles over the previous year. This increase exceeds that of any year since 1890. The aggregate length of track of all kinds was 297,073 miles. There were in service 46,743 locomotives, classified as passenger, 11,252; freight, 27,029; switching, 7,610. The total number of cars was 1,798,561—an increase of 45,172 over 1903. This rolling stock was classified as passenger, 39,752 cars; freight, 1,692,194; cars employed by railroads in their own service, as gravel cars, etc., 66,615. The number of passengers carried was 715,419,682. The number of tons of freight was 1,309,899,165. The average revenue per passenger was 2.006 cents, the average for the preceding year being the same. The average revenue per ton per mile was 0.780 cent. This average for the preceding year was 0.763 cent.

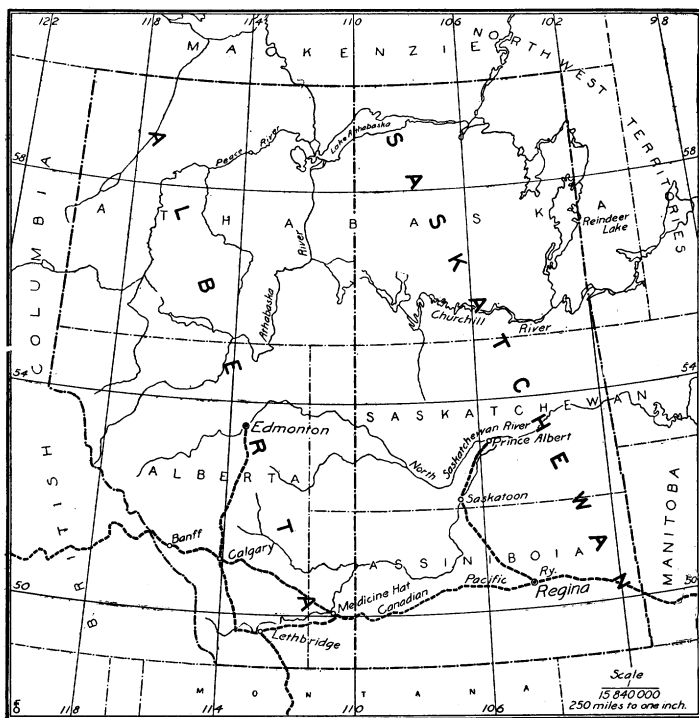
ROAD RED BOOK OF NEW YORK STATE FOR 1905.—This is a timely publication, particularly in view of the amendment to the New York State Constitution at the last election authorizing the State to incur debt for the improvement of highways. The book contains directions for the guidance of highway commissioners in towns that have adopted the money system of working roads, and are thus able to avail themselves of the assistance of the State in the improvement and maintenance of their common highways. It also describes the best methods of making and improving roads, and has many half-tone pictures showing good and poor roads in New York State, and various methods of making them and keeping them in repair. It is *Bulletin* No. 10 issued by the Department of the State Engineer and Surveyor.

TWO NEW PROVINCES IN THE DOMINION OF CANADA.—The provinces of Alberta and Saskatchewan were admitted into the Dominion on Sept. 1 last. As is shown by our map giving their boundaries, the new provinces include the former territories of Alberta, Assiniboia, Saskatchewan, and Athabasca. The entire area is bounded on the south by the international frontier; on the east by Manitoba and the 102nd meridian; on the west by British Columbia, the line in the south coinciding with the Great Divide of the Rocky Mountains; and on the north by the 60th parallel, which is also the northern boundary of British Columbia. The 110th meridian was selected as the dividing line between the new provinces, so that Alberta comprises the former territory of Alberta, the western half of Athabasca, and a narrow strip of Saskatchewan and Assiniboia; while Saskatchewan comprises the eastern half of Athabasca and the greater part of the former territories of Assiniboia and

Saskatchewan. Edmonton has been selected as the provisional capital of Alberta in preference to Calgary, and Regina will be the capital of Saskatchewan.

The two provinces comprise a total area of 550,000 square miles, and the population of each is roughly estimated at 250,000. A long-standing request of Manitoba for extension westwards was refused.

The public or Crown lands in the new provinces are to remain in the possession of the Dominion, financial compensation being given for them, to be increased as the population increases. Sir Wilfrid Laurier justified this treatment of the lands by the suggestion that the Government's immigration policy might suffer if it lost control of the unsettled land. The provinces will accordingly receive at once from



CANADA'S TWO NEW PROVINCES.

the Dominion an annual subsidy of upwards of \$1,300,000, and this will be increased with the increase of population and land values by a further annual payment of about \$650,000.

Pending further legislation, as the Society is informed by Mr. James White, Geographer of the Department of the Interior, the old territorial divisions of Franklin, Mackenzie, Keewatin, and Ungava have been done away with, and these parts of the Dominion are all now included in the North West Territories.

MINERAL PRODUCTS OF BRITISH COLUMBIA FOR 1904.—According to the annual *Report* (1904) of the Minister of Mines for British Columbia, the mineral output of that year was valued at \$18,977,359—a figure that had been exceeded only in

1901. The yield of placer gold was \$1,115,300; lode gold, \$4,589,508; and coal and coke, \$1,253,628. The total mineral production of the province from its settlement in 1852 to the end of 1904 was \$226,201,851, gold supplying nearly one-half of this value and coal and coke over one-third. British Columbia contributes half of the value of mineral output of the country. The report contains details of mining operations in the various districts and a considerable number of half-tone pictures showing mining camps, placer, and other kinds of mining and quarries.

THE MEXICAN FREE ZONE ABOLISHED.—This zone, which was established in 1851 by Mexico along her northern frontier, was abolished on July 1. The Free Zone was briefly described in the *BULLETIN* for May, p. 288. It was established, as President Diaz says in his proclamation, on account of the isolated condition of Mexicans along the northern frontier, to whom domestic commodities could not be sent cheaply because transportation was difficult and expensive. Commodities from the United States were therefore permitted to be imported practically free of duty, so that the inhabitants of the Free Zone might buy the necessities of life cheaply and be encouraged to establish industries by procuring raw materials at moderate cost. The various lines of railroad now make it easy to send domestic goods to frontier points, and for this and other reasons the need for the Free Zone no longer exists.

THE U. S. Board on Geographic Names rendered the following decisions October 4, 1905:

CAT: island in the St. Lawrence River, St. Lawrence county, N. Y. (Not Chat, Isle aux Chats, nor Macks.)

* **CONNERS:** creek, Wayne county, Mich. (Not Conner, Conner's, Connor's, Connors, nor Tremble's.)

CONNERS CREEK: post office and village, Wayne county, Mich. (Not Conner's Creek, nor Connors Creek.)

CRYSLER: island in the St. Lawrence River, St. Lawrence county, N. Y. (Not Chrisler, Dark, nor Lawrence.)

LEMITAR: post office, precinct, railroad station, and town, Socorro county, N. Mex. (Not Lamitar, Lamitas, nor Limitar.)

* **MARIANAS:** islands in the Pacific Ocean. (Not Ladrone, Ladrone's, Mariana, nor Marianne.)

MINNECHAUG: mountain, Hartford county, Conn. (Not Minnechug, nor Minnehaush.)

* **SHANTUNG:** province, China. (Not Shan-tung, nor Shangtung.)

ASIA.

A NEW PROVINCE IN INDIA.—The Indian Government adopted a resolution at Simla on July 19 by which Bengal was relieved of an area containing 24,000,000 people, or nearly a third of its population. This step was taken to reduce the size of the province in order to admit of more efficient supervision over its growing population. It was decided to cut off the whole of Eastern Bengal, including, besides Dacca and Chittagong, the districts of Rajshahi, Dinajpur, Jalpaiguri, Malda and Chittagong, and to unite it with Assam, as a lieutenant-governorship under the name of "Eastern Bengal and Assam." The area of the new province is 106,540 square miles, with a population of 31,000,000. The capital will be Dacca, with subsidiary headquarters at Chittagong. The typical Mohammedan

* Reversal of former decision.

population of Bengal will be concentrated in a single province, and nearly the whole of the tea industry and most of the jute-producing region are brought under a single Government.

PARA RUBBER IN ASIA.—Agricultural interest in the Federated Malay States is almost wholly centred in the cultivation of the Para rubber tree. The tree is suited to the conditions found there, and its cultivation is proving remunerative. The exports for 1904 amounted to 14,000 pounds, valued at over \$28,000. This amount will be greatly exceeded in the near future. It has been found that "Plantation Para" is higher-grade rubber than the wild product.—(Condensed from *Board of Trade Journal*, No. 461.)

DR. WORKMAN'S VIEWS ON HIGH MOUNTAINEERING.—The *Alpine Journal* for August contains a paper by Dr. William Hunter Workman on "Some Obstacles to Himalayan Mountaineering and the History of a Record Ascent," which was read before the Alpine Club on May 16th last. It will be remembered that Dr. Workman ascended to a height of 23,394 feet on Pyramid Peak, which is 24,500 feet in height. This is the record ascent in mountain-climbing. Dr. Workman said that he did not feel at all sanguine that Mount Everest would be conquered in the near future. He believes it cannot be ascended without means of transport superior to any now obtainable and after prolonged sieges, during which the mountaineers will have to meet and overcome not only the physical obstacles presented by the peak itself, but also those offered by altitude, heat, cold, snow, and wind, which become more accentuated the higher the points attained. One great difficulty is that it is almost impossible to force the coolies, who are needed to carry the camp equipment, up to a sufficiently high point to make the tops of these highest summits of the Himalayas attainable. While ascending Pyramid Peak, Dr. Workman was unable to pitch his final camp higher than 19,358 feet. If he could have camped at 21,000 or 22,000 he would, in all probability, have gained the summit instead of turning back 1,100 feet below it. He and his two white companions might probably have reached the top of this great mountain during that afternoon, for the weather was perfect; but the peak would have been their mausoleum, as they could not have regained camp that night, and a night in the open at that altitude would have meant certain death from cold.

He said that in the rarefied atmosphere a person can breathe more freely while erect than when lying down. In camp at 19,358 feet the whole party was kept awake by lack of breath. They would doze off and then awake with a start, gasping for breath. His conclusion is:

If camps could be established at heights of 23,000 feet to 25,000 feet and above, as they would have to be, sleep might be entirely prevented or interfered with by deficient oxygenation of the blood to such an extent that a party would be incapacitated from this cause alone from going any higher.

EUROPE.

CAVE EXPLORATION IN THE TWENTIETH CENTURY.—The latest number of *Spelunca* (Vol. VI, Part 1), extended to 192 pp., is wholly given to the first part of a work by Mr. E. A. Martel, the well-known cave explorer, entitled "La Spéléologie au XX^e Siècle (Revue et Bibliographie des Recherches souterraines de 1901 à 1905)". The activity in cave exploration at present is illustrated by the fact that a bare summary of the work done since the century opened in France alone fills the entire first part of this work. Part 2 will be given to speleology in foreign countries; Part 3 to speleology as applied to various sciences; and Part 4

to speleology as applied to public hygiene (Eaux d'alimentation). The four Parts will fill Volume VI of *Spelunca* for 1905.

Mr. Martel treats each of the cave regions of France in turn, briefly summarizing the new cave discoveries and fresh explorations in caves already visited. Many of the summaries occupy only a few lines each; the longest, given to Padirac, fills nine pages. Exaggerated statements with regard to dimensions of some caves and other facts relating to them are corrected. For example, it was reported in *Le Monde Moderne* in July, 1904, that the galleries of the Ardèche and the Pont d'Arc had a total length of over seven kilometers, while the scientific measurements made by Mr. Martel and Dr. Raymond, thirteen years ago, show less than half that length. The sources of information relating to each cave are at the end of the paragraph or section devoted to it.

A LOCAL GEOGRAPHICAL PUBLICATION.—The *Mitteilungen* des Vereins für Erdkunde zu Halle a. S., published by the Thuringia-Saxony Geographical Union, is an excellent example of a publication entirely devoted to the geographical interests of the small territory in which its members chiefly live. It is an annual. The volume for 1905 contains 125 pages and three maps, and is typographically attractive. The five geographical papers, by W. Ule and others, relate entirely to Thuringia and the province of Saxony. Forty-eight books and monographs, all relating to the home region, are concisely reviewed by Dr. A. Kirchoff, W. Ule, and other well-known geographers. The book reviews are followed by summary accounts of the excursions and meetings during the year, and lists of the members and library exchanges. From the appearance and quality of the *Mitteilungen* the inference seems fair that this Geographical Union and its Year Book are beneficial influences in all that relates to geography in their neighbourhood.

RAINFALL ON BEN NEVIS.—The rainfall on Ben Nevis is discussed by Andrew Watt in the *Journal of the Scottish Meteorological Society*, third series, 1905, Nos. 20 and 21. The nineteen-year period, 1885-1903, is considered. The mean annual rainfall at the summit was 160.8 inches, and that at the foot 78.6 inches. In individual years the amounts at the summit varied from 49 per cent. above to 33 per cent. below the mean, and at the base from 45 per cent. above to 23 per cent. below the mean. Rain falls more frequently but less heavily by night than by day at the foot of the mountain, speaking generally. On the summit the variations are less marked, but accord on the whole with those at Fort William. Falls of 4 to 6 inches a day have been recorded at the summit. R. DEC. W.

POLAR.

NEW COASTS SEEN BY THE DUKE OF ORLEANS.—Early in September news was received in Sweden from Reykjavik, Iceland, announcing that the Duke of Orleans and his party in the *Belgica* (BULLETIN, pp. 493-4) had made a successful voyage north along the east coast of Greenland. The point they were said to have attained is 78° 16' N., which is about 110 statute miles north of Cape Bismarck, the highest point reached by Payer of the Koldewey Expedition in 1870. The party found that Cape Bismarck is not on the mainland but is part of an island, the indentation which the German Expedition named Dove Bay being in fact a strait separating the island from the mainland. The return of the Duke's party to Belgium has confirmed this report and added very interesting details, which are published in *Petermanns Mitteilungen* for September.

It was found that north of Cape Bismarck the coast is little indented, in which respect it differs from most of the explored Greenland coast, which is more or less deeply dissected by fiords. The new-found coast-line was named *Terre de France*. The party was able to land on a cape which was named Cape Philippe ($77^{\circ} 36' \text{ N.}, 18^{\circ} 36' \text{ W.}$). Here they found ruins of Eskimo settlements; and this discovery will strengthen the view that at least a part of the Greenland wanderers travelled around the north end of Greenland and down the east coast.

At the *Belgica's* farthest north a wall of ice covering the sea and from 15 to 20 meters in height made it necessary to turn back. The deep-sea soundings appear to show that there is a submarine ridge between Greenland and Spitzbergen. It was thought probable that such was the case when the *Fram* returned from its oceanic investigations some years ago. The *Belgica* ascertained that at some distance from the Greenland coast the depths rapidly decreased from 470 meters to 58 meters. It is to be hoped that the expedition of the Duke of Orleans will encourage the fitting out of a party to make a thorough survey of the still unknown coast between *Terre de France* and the Independence Bay of Peary.

The Germans of the Koldewey Expedition reached Cape Bismarck by a difficult sledge journey in 1870. At that point, in about $76^{\circ} 40' \text{ N.}$, they were compelled to turn back on account of the failure of their supplies. It is not surprising that the Germans failed to recognize Cape Bismarck as part of an island, for in the account of the journey written by Payer he says that when they climbed to the top of Cape Bismarck a violent snowstorm prevailed, "which effectually prevented any great geographical acquisition."

IMMIGRATION OF THE ESKIMOS INTO GREENLAND.—Mr. H. P. Steensby summarizes in *Petermanns Mittheilungen* for August (pp. 186-187) the conclusions reached by Mr. Schultz-Lorentzen with regard to the immigration of the Eskimos into Greenland (Eskimoernes Indvandring i Grönland. *Meddelelser om Grönland*, No 26. Copenhagen, 1904). The stream of immigration from Bering Strait has been traced by the ruins of huts, graves, weapons, etc., from one island to another across the Arctic archipelago, north of our continent, to the narrow channels leading north from Smith Sound. This is undoubtedly the region where they crossed to Greenland. By what routes were they distributed along the east and west coasts?

Mr. Schultz-Lorentzen has deduced the theory, from what is now known of the natives and their abandoned dwelling-places, that the west coast Eskimos living south of Godthaab reached that region by way of the north and east coasts; and that the west coast natives living north of Godthaab, in Danish Greenland, reached their present habitat by sledging or boating south along the west coast.

As relates to their languages he points out that the Eskimos of Danish West Greenland may be divided into a northern and a southern group. The northern dialect, which is spoken north of Godthaab, makes predominant use of the vowels "u" and "o," and is designated as the "u" dialect. The southern dialect, spoken south of Godthaab, is called the "i" dialect, because the vowels "i" and "e" largely take the place of the vowels "u" and "o" in the northern dialect. It is found, also, that the east coast natives at Angmagsalik speak the "i" dialect.

These east coast natives and the west coast Eskimos south of Godthaab build partitions on their sleeping platforms, make the same shapes of boat frames, dress skins, and fashion their weapons and implements in the same manner, throw their dead into the sea, and in other ways resemble one another, while differing from the natives of Danish Greenland north of Godthaab. These are the most impor-

tant facts upon which he bases his theory as to the migration of the Eskimos after they reached Greenland.

This question can be settled only by the exploration of the still unknown north-east coast. Mr. L. M. Erichsen is said to be pushing his project for returning to the Smith Sound natives on the west coast and crossing the inland ice with a party of them for the purpose of exploring the unknown coast-line between Cape Bismarck and Independence Bay (BULLETIN, p. 554, Sept., 1905). If he succeeds in raising the necessary funds, he intends to make a thorough search of the coast of northeast Greenland for Eskimo remains. Should he find them, the migration of the natives around north Greenland to the east coast will doubtless be regarded as established.

THE SNOW HUTS OF THE ESKIMO.—The climatic control of the materials of which human dwellings are constructed has often been emphasized, and the general fact of snow huts in the Arctic, of light construction of leaves and bamboo in the moist tropics, or adobe houses in arid regions, and so on, are well known. The details of construction, however, and the more minute control of climatic conditions, have not, as yet, received adequate attention. For example, in the case of the snow huts of the Eskimo, it appears on the authority of Klutschak, as reported by Woeikof, that these huts, which are arched, are never constructed out of the first snow which falls. The Eskimo waits until successive snow-squalls and high winds have packed the snow down hard. In such cases as this, the density of the snow is not due to the weight of the snow, nor to successive thawings and freezings, as in the case of the formation of a *névé*, but it is simply the result of packing under wind action.

R. DEC. W.

INTERNATIONAL POLAR ENTERPRISE.—The *Vingtième Siècle*, Brussels, says that at the suggestion of King Leopold the polar explorers Lecointe and Arctowski of the *Belgica* Expedition, Professor Nordenskiöld, and Messrs. Bruce and Shackleton met at the Mons Congress to consider a scheme for international polar expeditions to be submitted to the fifth section of the Congress. It is proposed that these expeditions be organized through the good offices of various Governments, and that an organized effort be made to raise large sums of money for them, and it was said that the Government of Belgium would be active in the organization of such expeditions. Letters were read from leading explorers, including Peary, von Drygalski, Charcot, de Gerlache, and Racovitza, who were unable to attend, but endorsed the project and offered their support. The section of the Congress on Polar Exploration later adopted the resolution in favour of the scheme. It is hoped, if the project is successful, not only to stimulate polar research but also to secure the earlier publication of the scientific results.

SCIENTIFIC WORK OF THE ZIEGLER POLAR EXPEDITION.—Mr. William J. Peters, who accompanied the Ziegler-Fiala Expedition to Franz Josef Land (BULLETIN, Oct., 1905) as scientific observer, has made a short statement of the scientific work. Meteorological observations, begun immediately after leaving Norway in July, 1903, were continued until July 28, 1905, and recorded by the methods of the U. S. Weather Bureau.

Magnetic observations (declination, horizontal intensity, and dip) were made from Oct. 1, 1903, to June 29, 1904, at Teplitz Bay, according to a programme arranged by Dr. L. A. Bauer. This embraced two-minute eye readings of declination for twenty-four hours on Wednesdays, and for periods of consecutive four

hours on every other day of the week. Horizontal intensity and dip were observed weekly.

Astronomic observations were made with a Repsold circle at Teplitz Bay and Alger Island. Tidal observations were made for eight months; and the exploration and charting of Franz Josef Land were carried on with very satisfactory results in the summers of 1904 and 1905.

PROPOSED EXPLORATIONS WEST OF THE PARRY ARCHIPELAGO.—The Parry Archipelago extends north of our continent between the islands of North Devon and Banks Land. Between the Parry Archipelago and the New Siberia Islands, off the coast of Siberia, there is a stretch of Arctic waters about 1,000 miles in length which has not been explored except along the track of the *Jeannette* drift. Mr. Einar Mikkelsen of Copenhagen has raised a part of the funds necessary to place a small expedition in this region. He hopes, with the help of a geologist and a naturalist, to discover if any islands exist in this long stretch of sea. It is doubtful if he will be able to start before 1907.

Meanwhile a young Englishman, Mr. Alfred H. Harrison, is now supposed to be on his way down the Mackenzie River, and he will try to solve the same problem. The London *Times* says he is an experienced traveller, and has trained himself very thoroughly to carry out the work he has in view on scientific lines. He is bearing the entire expense himself, but carries instruments lent to him by the Royal Geographical Society.

RESULTS OF THE CHARCOT EXPEDITION.—Dr. Jean Charcot has described before the Paris Geographical Society the results of his recent expedition to the Palmer Archipelago and Graham Land, south of South America. *La Géographie* prints a summary of the work done, from which it appears that the entire region around the winter station at Wandel Island was surveyed by triangulation; the outer coast-lines of the islands of the Palmer Archipelago were also surveyed and the work connected with that of the *Belgica* party, so that the coast survey in this region was completed. The Biscoe Islands and parts of the coast of Graham Land were likewise surveyed, and trigonometrical observations were made of various points on Alexander I. Land from a great distance, but sufficiently exact to give an idea of the outline of a part of this promontory. The tides were studied for six months, and the rise was found to be slight, the maximum being about five feet. Meteorological and magnetic observations were numerous, the biological and geological studies were well rewarded, and the collections were important.

THE NORTH POLE BY BALLOON.—Mr. Marcillac, an aeronaut of Paris, is preparing to attempt another invasion of the North Polar regions by balloon. He thinks an airship may be made for him which will be adapted for polar conditions, and that with his improved outfit he may hope to escape the fate that overtook André.

TERRESTRIAL MAGNETISM.

THE MAGNETIC SURVEY OF THE NORTH PACIFIC OCEAN.—Dr. L. A. Bauer, Director of the Department of Terrestrial Magnetism in the Carnegie Institution, has informed the Society of the organization and preliminary work of the expedition which has begun the proposed magnetic survey of the North Pacific. The brig *Galilee* was chartered by the Department, and after having "swung" ship on Aug. 2, 3, and 4, in San Francisco Bay, to determine the effect from the remaining iron on board, she sailed on Aug. 5 for San Diego, reaching that port on Aug.

12. Magnetic data were daily secured under various conditions and with various instruments. Dr. Bauer accompanied the expedition, and *Science* reports that his deflection apparatus for determining horizontal intensity proved successful.

At San Diego the ship was again "swung" for the determination of the deviation co-efficients, some further alterations were made, and the *Galilee* left San Diego on Sept. 1 for Honolulu, arriving there on Sept. 15. She is now working in the region of the Pacific north of the Hawaiian Islands. In accordance with the plans, the *Galilee* is to return to San Francisco by Dec. 1, and will leave early in January for an entire circuit of the North Pacific Ocean if the necessary funds have been provided.

The *Galilee* is a wooden sailing vessel, built in 1891, and was originally in the passenger trade between San Francisco and Tahiti. Her length is 132.5 feet, breadth 33.5 feet, and depth 12.7 feet; net tonnage about 328. To adapt her for the purposes of the magnetic expedition, it was necessary to remove as much of the iron on her as possible, the principal change required being the substitution of the steel rigging by hemp rigging. The cabin space had to be enlarged for the accommodation of the scientific personnel, and a special observing bridge was built to run fore and aft, and to be about 15 feet above the deck, in order to get as far away as possible from the iron in the deck and in the sides of the vessel.

The *Galilee* is at present commanded by Captain J. F. Pratt, of the United States Coast and Geodetic Survey. He is assisted in the scientific work by Dr. J. Hobart Egbert, surgeon in the United States Coast and Geodetic Survey, by Mr. J. P. Ault, magnetic observer of the Institution, and by Mr. P. C. Whitney, magnetic observer and watch officer, also of the Coast and Geodetic Survey. The sailing master is Captain J. T. Hayes, and the crew consists of ten men.

The *Galilee* is the fastest sailer of her size in the Pacific Ocean. She has made a voyage of 3,000 miles from the South Pacific Islands to San Francisco in fifteen days, and has made as much as 308 miles in one day. By special courtesy of the Secretary of Commerce and Labor the *Galilee* has been classed as a yacht, in order to facilitate her passages from port to port.

GENERAL.

CAUSES OF OCEAN CURRENTS.—A paper by Dr. Nansen on this question appeared in the first three numbers of *Petermanns Mitteilungen* for 1905. His views are based upon his experiences during the voyage of the *Fram* and the investigations and laboratory experiments he has made since his return to Europe. He does not share the opinion, advanced by many writers, that ocean currents are caused by the predominating influence of atmospheric currents. As the effect of the earth's rotation brings about a deviation of the ocean currents from the direction of the wind, he believes that this fact vitiates the conclusions of those who hold to the above theory. Except on the equator and in special cases due to the proximity of large land-masses, he holds that it is impossible for a wind to produce a water current that coincides with it in direction.

It is his belief that the potent agent in the production of ocean currents is the difference in temperature between the equator and the poles. Winds, however, while not shaping the courses of currents, may influence to some extent their rate of motion. The main ocean currents, he believes, may be explained as due to influences introduced by the continents in their path. Dr. Nansen's paper is a searching and brilliant exposition of his investigations and deductions, but in so complicated a subject, bristling with disturbing factors, it may be long before a conclusion is reached that will be universally accepted.

THE LIBBEY CIRCLE IN SEISMOLOGY.—In the annual report for 1904 (Part I, p. 44) of the British Association for the Advancement of Science, Prof. Milne refers to the "Libbey Circle" and enters it upon an accompanying earthquake chart. Undoubtedly, Prof. Milne refers to the meeting of that Association in 1902 when Prof. William Libbey, of Princeton, was present and spoke at length upon what Prof. Guyot was in the habit of calling the great zone of fracture about the globe.

This circle is a small circle of the globe having Bering Strait as a centre or pole and a radius of about 80° of arc. It is found that a circle thus drawn cuts through all the depressed lands in the central portion of the globe.

Prof. Guyot often referred to this region as the zone of fracture and one that contained five-sixths of the active volcanoes of the world. It stands in clear contrast with the great circle of volcanoes surrounding the Pacific Basin. It is, in fact, a zone because a great circle will not exactly fit all these depressions, but a zone with slightly irregular borders and with this circle as an approximate median line will do so. Prof. Guyot never referred to this zone as in any way connected with seismological phenomena, but Prof. Libbey spoke of this part of the subject at considerable length, and reported that he had a large amount of as yet unpublished evidence of very great seismic activity within this zone.—(*Monthly Weather Review*, June, 1905.)

HELPS TO EXPLORERS.—Many explorers are familiar with the very valuable work edited by Dr. von Neumayer, "Anleitung zu wissenschaftlichen Beobachtungen auf Reisen." *Nature* says that at the age of four-score years he is issuing the fourth edition of this work, which is appearing in Parts (Jaennecke, Hanover). The work will comprise two volumes, the first dealing with geography and inanimate nature, the second with plants, animals, and man. More than thirty experts are collaborating under Dr. von Neumayer's editorship, so that each subject will be treated by an expert. The price of the two volumes will be 36 marks. The first two Parts contain articles on geographical observations, directions for somatological observations, and the beginning of an excellent article by Dr. von Luschan on field work in archæology. The last edition appeared in 1888, and in many branches of knowledge the advance since that date has been immense.

GEOLOGICAL BIBLIOGRAPHY FOR 1904.—The Geological Survey has issued, as *Bulletin 271*, the "Bibliography and Index of North American Geology, Paleontology, Petrology, and Mineralogy for 1904," compiled by Mr. Fred. B. Weeks. An effort was made to procure for this annual publications which were not noticed in the bibliographies of previous years. The volume contains full titles of papers arranged alphabetically by authors' names, with a brief description of the contents; the index makes full reference to the subjects treated in the papers.

THE TENTH INTERNATIONAL GEOLOGICAL CONGRESS.—This Congress is to meet in the City of Mexico on Sept. 6, next year. Mr. José G. Aguilera, the Director of the Geological Institute of Mexico, has been appointed Chairman of the Committee of Arrangements.

AN INTERNATIONAL COMMITTEE.—The Committee provided for by the Eighth International Geographic Congress to take steps to bring about closer social relations among the geographical societies of the world has been organized as follows: Prof. William Libbey of Princeton University, president; Prof. H. Cordier of the Ecole des langues orientales, Paris; Dr. Hugh Robert Mill, London; Prof. A. Penck of the University of Vienna; Dr. A. de Claparède of the University of

Geneva; Prof. E. von Drygalski of the University of Berlin; Felipe Valle, director of the Observatory at Tacubaya, Mexico; and Eki Hioki, first secretary of the Japanese Legation at Washington.

PERSONAL.

Dr. Robert Sieger, who in 1898 became Professor at the Export Academy in Vienna, and since 1903 has been in charge of the Department of Commercial Geography in the University of Vienna, has been appointed Professor of Geography at the University of Gratz, to succeed the late Dr. E. Richter. Dr. Sieger's writings on physical geography and many other geographical topics made him well known before he turned his attention largely to economic and commercial geography, in which he is an acknowledged expert.

Mr. Charles W. Brown has been appointed Instructor in Geology and Mineralogy at Brown University.

Dr. W J McGee, formerly ethnologist in charge of the Bureau of American Ethnology, has been appointed Managing Director of the St. Louis Public Museum.

Dr. H. Foster Bain, Ph.D., Geologist of the U. S. Geological Survey, has been appointed State Geologist of Illinois.

Mr. Bailey Willis, of the U. S. Geological Survey, will in January next give a course of twelve lectures in the Geological Department of the University of Wisconsin on the subject of "Continental Variations, with Special Reference to North America."

The University of Cambridge has conferred the degree of Doctor in Science upon Capt. Robert F. Scott, the Antarctic explorer, and Sir Francis Younghusband, who led the recent British mission to Lhasa.

Prof. A. P. Brigham, of Colgate University, spent the summer with his family in Great Britain. He also made the cruise of the Norwegian fiords from Odde and Bergen to Trondhjem, where glacial erosion, the industries, and the Lake Soen landslip of last January were among the things that interested him. Besides revisiting Oxford and London, he spent some time in Norfolk and along the east coast, the country of the Broads and the shore cliffs, with evidences of encroachment by the sea made classic by Lyell in his "Principles." He also visited the Peak district of Derbyshire and the Snowdon region of North Wales, collecting many photographs and comparing different types of scenery and of British rural life.

THE AMERICAN GEOGRAPHICAL SOCIETY.

ANNOUNCEMENT.—At the next meeting of the Society, to be held at Mendelssohn Hall, No. 119 West Fortieth Street, on Tuesday, November 28, 1905, at 8.30 o'clock, P. M., Mr. Bailey Willis will narrate his Experiences among the Chinese.

NEW MAPS.

AFRICA.

AFRICA.—Deutsche Arbeit in Afrika 1884 bis 1905. Scale, 1:25,000,000, or 394.5 statute miles to an inch. By Paul Langhans. *Deutsche Erde*, No. 4, 1905. Justus Perthes, Gotha.

Shows in colours the areas of the German Protectorates in 1884 and 1885, and